



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

**OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES**

MEMORANDUM

January 24, 2002

SUBJECT: Endangered Species addendum to EFED's Disulfoton Science Chapter

FROM: Henry Craven, Biologist EFED
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This memo reflects EFED's consultation with FEAD and presents the results of a preliminary assessment for potential risk to endangered birds and mammals from disulfoton's use in the following situations:

- Asparagus-- foliar application of liquid in CA and WA
- Barley -- foliar application of liquid in CO, ID, MT and WA
- Christmas trees -- spot broadcast of granular in NC
- Coffee -- spot broadcast of granular in Puerto Rico
- Cotton -- in furrow application of granular and liquid in LA, MO, OK, NC and SC
- Potatoes -- foliar application of liquid in ID and WA
- Wheat -- foliar application of liquid in KY

Appended to this memo are two print outs from OPPs Endangered Species data base that compares USDA's Agriculture Census information on crop and county overlap with USFWS information on the location of endangered species to the county level. One print out applies to Christmas trees in N Carolina and the second is for the other crops (except coffee) and states. Since the data base does not include information on Puerto Rico, Larry Turner had personal communication with Felix Lopez, Environmental Contaminants Specialist USFWS, Tel #. 787-851-7297 (ext. 26). The results of a cursory screen of the two print outs and the phone call are as follows:

Two species were identified as possibly needing some form of mitigation. These species are the Puerto Rican plain pigeon in coffee plantations and the Mountain plover in barley

fields.

Puerto Rico has no endangered mammals, however two endangered ground feeding birds, i.e. Yellow shouldered blackbird and Puerto Rican plain pigeon, could consume granules as grit. Only the Puerto Rican plain pigeon utilizes coffee plantations. Puerto Rico is divided up politically into 72 municipalities. The Puerto Rican plain pigeon resides in 5 municipalities of which 4, i.e. Cayey, Cidra, Comerio, Utuado, contain coffee plantations. Utuado has ~7500 acres of coffee, which is about 1/4th the area of the municipality; the other three have less than 100 acres each. Mitigation could be assured by off labeling for the 4 municipalities.

There was no county overlap between asparagus in Washington and California and endangered species.

With respect to disulfoton use on barley, only the Mountain plover is at potential risk from ingesting soil invertebrates in soil that has been sprayed directly or received wash off from the foliage. However, residues would likely be lower than what would be required to cause an adverse effect. The overlap between the number of counties where barley is grown and the bird may occur includes 14 in Colorado and 17 in Montana. Additionally, like other plovers, the bird prefers unvegetated, open areas; if the barley is taller than 3 inches before it is sprayed there is little likelihood the bird would utilize the field. Therefore, a label statement limiting application of disulfoton to when the crop is at least 3 inches tall could provide a reasonable measure of mitigation of risk from disulfoton exposure. Finally, the species has been proposed, but is not officially listed as endangered. Regardless of the status, OPP needs to be aware of the potential for exposure.

Although carnivorous birds (ie. owls and eagles) and mammals (ie. Black-footed ferret, grizzly, Gray wolf and Red Wolf) were located in the same counties as all crops except coffee, they are not at risk because secondary poisoning studies on representatives from these two classes did not indicate concern.

Several crops such as cotton, wheat and Christmas trees were located in the same counties as endangered bats. However bats are not at risk from disulfoton sprays as they would only be feeding on flying insects from dusk to dawn. If spraying is restricted to daylight hours, bats would not be exposed to disulfoton. Bats would not be exposed to granules.

With respect to Christmas trees in North Carolina, in addition to some of the organisms stated above there are several birds and mammals which although they could be in or around the vicinity of Christmas tree plantations are not considered at risk especially from use of granules. The Wood Stork feeds on fish and the Piping plover resides on sand bars and feeds on aquatic invertebrates; therefore neither of these species are likely to be impacted. Because disulfoton is systemic, there is a slight potential for low, undetermined dietary exposure to the Northern

flying squirrel and the Red-cockaded woodpecker. The squirrel consumes organisms, i.e. lichens, fungi and insects, or plant parts, i.e. buds and seeds that could take up disulfoton residues from the xylem. However as the squirrel is a cavity nester it prefers tall deciduous trees to conifers in the same proximity. The woodpecker requires old growth (at least 60 years) living pine trees in which to make cavities; they feed on insects found under the bark of conifers where the trunk is larger and more accessible than in young Christmas trees.

Concerning uses other than Christmas trees and coffee the following endangered species are forest dwellers and are not associated with agricultural sites: Northern Idaho Ground Squirrel, Marbled murrelet (feeds on fish), Woodland caribou, Brown Pelican (feeds on fish), Red cockaded woodpecker, Carolina northern flying squirrel, Preble's meadow jumping mouse (resides in high elevation meadows). These species would not be considered at risk. In addition to the forest dwellers, Wood storks feed on fish, Whooping cranes feed on aquatic invertebrates, Black capped vireos reside in scrub areas and feed on flying insects, Piping Plovers reside principally on sand bars and feed on aquatic invertebrates, and Idaho ground squirrels inhabit meadows. These species would not be considered at risk.

Considering the biology of the species mentioned above and the specific recommendations to avoid exposure of disulfoton to the Puerto Rican plain pigeon and the Mountain plover, we believe there will be no effect on threatened and endangered species.